

**Amendment/Response to Office Action****Amendments to the Claims**

This listing of claims replaces all prior versions, and listings, of claims in the application.

**1. (Currently amended)**

A sensor for monitoring an environmental parameter in concrete comprising:

- (a) an enclosure for embedding in concrete;
- (b) a detecting means connected to the enclosure for detecting at least one environmental parameter in concrete, the detecting means comprising at least one capacitive element for measuring capacitive change;
- (c) an active material connected to the enclosure,
  - (i) the active material being liable to respond to the environmental parameter, and
  - (ii) the active material being operably connected to the capacitive element;
- (d) a RFID chip mounted within the enclosure, the RFID chip being operably connected to the detecting means; ~~and~~
- (e) an antenna operably connected to the RFID chip,
  - (i) the antenna being operably connected to the detecting means, and
  - (ii) the antenna being part of an ~~L-R-C~~ L-C circuit whose resonance frequency shifts within an assigned frequency band, and
- (f) a transceiver electromagnetically coupled with the antenna,

wherein the transceiver is operably connected to a means for measuring the change in resonance frequency of the sensor's L-C circuit.

**2. (Cancelled)**

The sensor of claim 1 further comprising:

- (f) a transceiver electromagnetically coupled with the antenna.

**3. (Currently amended)**

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The sensor of claim [[2]] 1 further comprising:

(g) an information processor in communication with the transceiver, the information processor being adapted to identify the environmental parameter from data generated by the transceiver.

**4. (Original)**

The sensor of claim 1 wherein the shift in resonance frequency is a shift in frequency of a re-radiated signal.

**5. (Cancelled)**

The sensor of claim 2 wherein the transceiver is operably connected to a means for measuring the change in resonance frequency of the sensor's L-R-C circuit.

**6. (Original)**

The sensor of claim 3 wherein the environmental parameter is identified by measuring a shift in frequency of complex impedance (Z) within the assigned frequency band.

**7. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the capacitive change is effected by movement of the capacitive element.

**8. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the capacitive change is effected by change in permittivity of the active material.

**9. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the capacitive element comprises a parallel plate capacitor.

**10. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the parallel plate capacitor is a perforated parallel plate capacitor.

**11. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the capacitive element comprises an interdigitated capacitor.

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The sensor of claim 1 [[or 2]] wherein at least a portion of the enclosure is permeable.

**13. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the environmental parameter is moisture content.

**14. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the environmental parameter is temperature.

**15. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the environmental parameter is pH.

**16. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the environmental parameter is ion concentration.

**17. (Currently amended)**

The sensor of claim [[1 or 2]] 16 wherein the ion is chloride.

**18. (Currently amended)**

The sensor of claim [[1 or 2]] 16 wherein the ion is sodium.

**19. (Currently amended)**

The sensor of claim [[1 or 2]] 16 wherein the ion is potassium.

**20. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the active material is a dielectric material.

**21. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the active material is a hydrogel.

**22. (Currently amended)**

The sensor of claim 1 [[or 2]] wherein the assigned frequency band is 13.56 MHz and the re-radiated signal is within a frequency band 27.125 MHz.

**23. (Withdrawn)**